

**WHAT IS CLAIMED IS:**

1. A light source, comprising:
  - a light-emitting tube having a light-emitting portion that emits a light beam by an electric discharge between electrodes and sealing portions provided on both sides of the light-emitting portion;
  - a reflector that reflects the light beam emitted by the light-emitting portion forward after aligning in a predetermined direction;
  - a cover covering a light-irradiation opening of the reflector, the cover having an opening for irradiating the light beam reflected by the reflector and a heat-radiation fin formed on the outside thereof, the cover being made of a heat-conductive material that absorbs a heat generated by the light-emitting tube and conducts the absorbed heat to the heat-radiation fin; and
  - a transparent member that covers the opening of the cover.
- 15 2. The light source according to claim 1,
  - wherein the reflector is an ellipsoidal reflector having an ellipsoidal reflecting surface,
  - wherein a sub-reflection mirror that covers approximately half of the front side of the light emitting portion is provided in the light-emitting tube, the light-emitting tube being projected from a light-irradiation opening of the ellipsoidal reflector.
- 20 3. The light source according to claim 2, the cover comprising an approximately conic cylindrical heat absorber that is tapered from the light-irradiation opening of the reflector in a direction for the light to be irradiated.
- 25 4. The light source according to claim 3, wherein the heat-radiation fin is a plate provided on the outside of the heat-absorber extending in a direction orthogonal to the optical axis of the reflector.

5. The light source according to claim 2, wherein the transparent member is a parallelizing lens that parallelizes a convergent light irradiated by the ellipsoidal reflector.
- 5 6. The light source according to claim 5, wherein the parallelizing lens is a parallelizing concave lens having thickness of 2 mm or more along a direction for the light to be transmitted.
7. The light source according to claim 5, wherein the parallelizing lens is a parallelizing concave lens having an aspherical concave surface on a light-incident side thereof and a flat surface on a light-irradiation side thereof.
8. The light source according to claim 7, wherein the aspherical surface is a hyperboloid.
- 15 9. The light source according to claim 7, wherein an ultraviolet protection film that prevents transmission of ultraviolet is formed on the light-irradiation side of the parallelizing concave lens.
- 20 10. The light source according to claim 1, wherein the cover is made of ceramics and a hole for inserting an electrode-connecting wire of the light-emitting tube is formed on the cover.
11. A projector that modulates a light beam irradiated by a light source in accordance with image information to form an optical image and projects the optical image in an enlarged manner, comprising:
  - a light source according to claim 1.
- 25 12. The projector according to claim 11, further comprising a cooling device that

cools the heat-radiation fin formed on the cover of the light source.

13. The light source according to claim 11,  
wherein the reflector is an ellipsoidal reflector having an ellipsoidal reflecting  
surface,  
wherein a sub-reflection mirror that covers approximately half of the front side of  
the light emitting portion is provided in the light-emitting tube, the light-emitting tube  
being projected from a light-irradiation opening of the ellipsoidal reflector.
- 10 14. The light source according to claim 13, the cover comprising an approximately  
conic cylindrical heat absorber that is tapered from the light-irradiation opening of the  
reflector in a direction for the light to be irradiated.
- 15 15. The light source according to claim 14, wherein the heat-radiation fin is a plate  
provided on the outside of the heat-absorber extending in a direction orthogonal to the  
optical axis of the reflector.
16. The light source according to claim 11, wherein the transparent member is a  
parallelizing lens that parallelizes a convergent light irradiated by the ellipsoidal reflector.
- 20 17. The light source according to claim 16, wherein the parallelizing lens is a  
parallelizing concave lens having thickness of 2 mm or more along a direction for the light  
to be transmitted.
- 25 18. The light source according to claim 16, wherein the parallelizing lens is a  
parallelizing concave lens having an aspherical concave surface on a light-incident side  
thereof and a flat surface on a light-irradiation side thereof.
19. The light source according to claim 18, wherein the aspherical surface is a

hyperboloid.

20. The light source according to claim 18, wherein an ultraviolet protection film that prevents transmission of ultraviolet is formed on the light-irradiation side of the  
5 parallelizing concave lens.

21. The light source according to claim 11, wherein the cover is made of ceramics and a hole for inserting an electrode-connecting wire of the light-emitting tube is formed on the cover.